

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF: Peter BASSLER, et al.

SERIAL NO: 10/521,783

GAU:

FILED: January 21, 2005

EXAMINER:

FOR: CONTINUOUSLY OPERATED PURIFICATION BY DISTILLATION OF THE 1,2-PROPYLENE GLYCOL  
FORMED IN THE COPRODUCT-FREE SYNTHESIS OF PROPYLENE OXIDE

INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

REFERENCES

- The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

RELATED CASES

- Attached is a list of applicant's pending application(s), published application(s) or issued patent(s) which may be related to the present application. In accordance with the waiver of 37 CFR 1.98 dated September 21, 2004, copies of the cited pending applications are not provided. Cited published and/or issued patents, if any, are listed on the attached PTO form 1449.
- A check or credit card payment form is attached in the amount required under 37 CFR §1.17(p).

CERTIFICATION

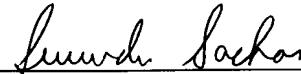
- Each item of information contained in this information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

DEPOSIT ACCOUNT

- Please charge any additional fees for the papers being filed herewith and for which no check or credit card payment is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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| Form PTO 1449<br>(Modified)  |    | U.S. DEPARTMENT OF COMMERCE<br>PATENT AND TRADEMARK OFFICE  |          | ATTY DOCKET NO.<br>264922US0PCT  |             | SERIAL NO.<br>10/521,783 |                               |
|--|----|---|----------|--|-------------|--------------------------|-------------------------------|
| LIST OF REFERENCES CITED BY APPLICANT  |    | APPLICANT<br>Peter BASSLER, et al.  |          |  |             |                          |                               |
|  |    | FILING DATE<br>January 21, 2005   |          | GROUP  |             |                          |                               |
|  |    | U.S. PATENT DOCUMENTS   |          |  |             |                          |                               |
| EXAMINER<br>INITIAL  |    | DOCUMENT<br>NUMBER  | DATE     | NAME   | CLASS       | SUB<br>CLASS             | FILING DATE<br>IF APPROPRIATE |
|  | AA | 3 574 772   | 04/13/71 | BECKER, Mitchell et al.  |             |                          |                               |
|  | AB | 2 471 134   | 05/24/49 | WRIGHT, Richard O.   |             |                          |                               |
|  | AC | 4 230 533   | 10/28/80 | GIROUX, Victor A.  |             |                          |                               |
|  | AD |   |          |  |             |                          |                               |
|  | AE |   |          |  |             |                          |                               |
|  | AF |   |          |  |             |                          |                               |
|  | AG |   |          |  |             |                          |                               |
|  | AH |   |          |  |             |                          |                               |
| FOREIGN PATENT DOCUMENTS   |    |   |          |  |             |                          |                               |
|  |    | DOCUMENT<br>NUMBER  | DATE     | COUNTRY  | TRANSLATION |                          |                               |
|  | AI | 00/07965  | 02/17/00 | WO (with English abstract & equivalent of US 6479680)                      | YES         | NO                       |                               |
|  | AJ | 101 05 527  | 08/08/02 | DE (equivalent of US 2004/0068128)   |             |                          | NO                            |
|  | AK | 99/31034  | 06/24/99 | WO   |             |                          | NO                            |
|  | AL | 0 122 367   | 10/24/84 | EP   |             |                          | NO                            |
|  | AM | 0 133 510   | 02/27/85 | EP (equivalent of CA 1222717)  |             |                          | NO                            |
|  | AN | 0 126 288   | 11/28/84 | EP (equivalent of CA 1242309)  |             |                          | NO                            |
|  | AO | 196 23 609  | 12/18/97 | DE (equivalent of US 6008389)  |             |                          | NO                            |
|  | AP | 197 23 949  | 12/10/98 | DE (equivalent of US 6380119, US 6710002, US 2002/082159 & US 2004/152583) |             |                          | NO                            |
| OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)  |    |   |          |  |             |                          |                               |
|  | AQ | KAIBEL, Gerd. "Distillation Columns with Vertical Partitions", Chem. Eng. Technol., vol. 10, pages 92-98<br>1987  |          |  |             |                          |                               |
|  | AR | ELM, Rainer et al. "Propanidole", Ullmanns Encyklopaedie der technischen Chemie, Verlag Chemie, 4 <sup>th</sup> edition, vol. 19, pages 425-432<br>1980                                     |          |  |             |                          |                               |
|  | AS | KAIBEL, Gerd et al. "Gestaltung destillativer Trennungen unter Einbeziehung thermodynamischer Gesichtspunkte", Chem.-Ing.-Tech., vol. 61, no. 1, pages 16-25, with English abstract<br>1989 |          |  |             |                          |                               |
|  | AT | KAIBEL, G. et al. "Thermodynamics – guideline for the development of distillation column arrangements", Gas Separation & Purification, vol. 4, pages 109-114<br>1990                        |          |  |             |                          |                               |
|  | AU | "Distillation's great leap forward?"-Process Engineering, vol. 2, pages 33-34<br>1993   |          |  |             |                          |                               |
|  | AV | LESTAK, F. et al. "Heat Transfer Across the Wall of Dividing Wall Columns", Trans IChemE, vol. 72, part A, pages 639-644<br>1994  |          |  |             |                          |                               |
|  | AW | LESTAK, Frigyes et al. "Advanced Distillation Saves Energy & Capital", Chemical Engineering, vol. 7, pages 72-76<br>1997  |          |  |             |                          |                               |
|  | AX | "Production", Hydrogen Peroxide, Ullmann's Encyclopedia of Industrial Chemistry, 5 <sup>th</sup> ed., vol. 13, pages 447-56   |          | <input type="checkbox"/> Additional References sheet(s) attached           |             |                          |                               |
| Examiner   |    |   |          | Date Considered  |             |                          |                               |
| *Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. |    |   |          |  |             |                          |                               |

U.S. PCT Application Serial No.: 10/521,783  
Docket No.: 264922US0PCT

#### STATEMENT OF RELEVANCY

- 1) References AA, AQ have been cited in the International Search Report. Copies of these references are being submitted herewith only when not automatically provided by the International Searching Authority.
- 2) References \_\_\_\_\_ have been cited in the corresponding \_\_\_\_\_ Search Report. A copy of these references is being submitted herewith.
- 3) References AB, AC, AI-AP, AR-AX are discussed in the specification. A copy of these references is being submitted here with.
- 4) References \_\_\_\_\_ are additional prior art known to Applicant. A copy of these references is being submitted herewith.

AL EP 0 122 367

In the column for the separation by distillation of feed product entering the distillation column at a feed point consisting of several fractions, into a pure top fraction and a pure bottom fraction and several, preferably one or two, medium-boiling fractions in the boiling range between the top fraction and bottom fraction and free or largely free of contamination by top and bottom fractions, partition devices acting in the longitudinal direction to prevent cross-mixing of liquid streams and/or vapour streams are arranged in a part region of the distillation column below and/or above the feed point and divide the distillation column into a feed section, where the feed product enters, and a take-off section, from which the medium-boiling fractions emerge, and the partition devices acting in the longitudinal direction are taken along such a number of separation stages that medium-boiling fractions free or largely free from contamination by top fractions and bottom fractions can be taken off in the take-off section.

AM EP 0 133 510

A process for separating a mixture which is azeotropic or behaves almost azeotropically and is difficult to separate by distillation, into two pure or substantially pure fractions by distillation, by adding a further component, using a procedure which is similar to extractive distillation and is carried out in a distillation column, a section of which is

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#### STATEMENT OF RELEVANCY

AM EP 0 133 510 cont.

divided into a feed part and a take-off part by a separating means which is effective in the longitudinal direction and prevents cross-mixing of liquid streams and/or vapor streams, wherein the azeotropic mixture is fed in part-streams to the feed part and to the take-off part, in each case at or near the top, and one of the two pure or substantially pure fractions is removed as overhead product from the distillation column, and the other fraction is removed as side product from the take-off part, the side product passing from the feed part into the take-off part only at the lower end of the separating means.

AN EP 0 126 288

A method of carrying out a chemical reaction and simultaneously separating a product mixture into several fractions by means of a distillation column which, in parts, is divided into a reaction section and a distillation section by separating means which are effective in the longitudinal direction and prevent cross-mixing of liquid and/or vapor streams, wherein two or more reactants and, where relevant, a catalyst are fed into the reaction section (3), and at the same time one or more medium-boiling fractions, which can consist of reactants and/or reaction products and are free, or substantially free, from contamination by overhead and bottom fractions, are taken off in vapor or liquid form from the distillation section (4).

AS KAIBEL, Gerd et al. "Gestaltung destillativer Trennungen unter Einbeziehung thermodynamischer Gesichtspunkte", Chem.-Ing.-Tech., vol. 61, no. 1, pages 16-25, with English abstract, 1989

Design of distillative separation with due consideration of thermodynamic aspects. This article presents a method for development of advantageous distillative separation equipment by starting from the ideal case of a thermodynamically loss free separation and applying simplifications. Process engineering boundary conditions can serve for clear divisions into individual areas. Possibilities of process integration by a direct thermal and mass linkage are indicated, and promising thermal networking measurements are mentioned. The procedure is illustrated by examples.